SHEBA:
SURFACE HEAT BUDGET OF THE ARCTIC OCEAN, PHASE 3

Program Solicitation
NSF 00-19

DEADLINE DATE: MARCH 8, 2000

OFFICE OF POLAR PROGRAMS
DIVISION OF OCEAN SCIENCES

HIGH LATITUDE PROGRAM

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SUMMARY OF PROGRAM REQUIREMENTS

GENERAL INFORMATION

Program Name: SHEBA: Surface Heat Budget of the Arctic Ocean, Phase 3

Short Description/Synopsis of Program: The goal of the SHEBA Phase 3 project is to utilize data sets collected during the field program (Phase 2) to: (1) determine the ice-ocean-atmosphere processes that control the ice albedo feedback (IAF) and cloud-radiation feedback (CRF) mechanisms over an annual cycle, leading to improvement of models of arctic ocean- atmosphere-ice processes, and (2) develop models that improve simulations of the present day arctic climate, utilizing coupled General Circulation Models (GCM)s. To accomplish these goals, SHEBA Phase 3 projects will combine modeling, synthesis and integration of the SHEBA ocean/atmosphere/ice data set to investigate the IAF and CRF mechanisms, and develop improved formulations for climate models.

Cognizant Program Officer(s): Michael Ledbetter, Office of Polar Programs, (703) 306-1029, email: mledbett@nsf.gov; H. Lawrence Clark, Division of Ocean Sciences, (703) 306-1584, email: hclark@nsf.gov, Dennis Conlon, Office of Naval Research, (703) 696-4720, email: conlond@onr.navy.mil.

Applicable Catalog of Federal Domestic Assistance (CFDA) No.: 47.078 — Polar Programs, 47.050 – Directorate for Geosciences

ELIGIBILITY

- Limitation on the categories of organizations that are eligible to submit proposals: **None**
- PI eligibility limitations: **None**
- Limitation on the number of proposals that may be submitted by an organization: **None**

AWARD INFORMATION

- Type of award anticipated: **Standard or Continuing Grant**
- Number of awards anticipated in FY 00: **20-25 awards with award size ranging from $200,000 to $500,000 per year.**
- Amount of funds available: **Approximately $9,000,000 will be available in FY 2000-02**
- Anticipated date of award: **August 2000**

PROPOSAL PREPARATION & SUBMISSION INSTRUCTIONS

- **Proposal Preparation Instructions**
  - Letter of Intent requirements: **None**
  - Preproposal requirements: **None**
  - Proposal preparation instructions: **Standard NSF Grant Proposal Guide instructions**

- Supplemental proposal preparation instructions**: None**
- Deviations from standard (GPG) proposal preparation instructions: **None**

♦ **Budgetary Information**

- Cost sharing/matching requirements: **None**
- Indirect cost (F&A) limitations: **None**
- Other budgetary limitations: **None**

♦ **FastLane Requirements**

- Use of FastLane required.
- FastLane point of contact: **FastLane User Support, telephone: 703. 306.1142, e-mail: Fastlane@nsf.gov**

♦ **Deadline/Target Dates**

- Full Proposal Deadline **5:00 PM, local time, March 8, 2000**

PROPOSAL REVIEW INFORMATION

♦ Merit Review Criteria: **Standard National Science Board approved criteria**

- Additional Review Criteria: **All proposals must describe how the proposed study will address scaling from the local and regional scale of the SHEBA data set to the larger scales appropriate to the resolution of current and future climate models.**

AWARD ADMINISTRATION INFORMATION

♦ Grant Award Conditions: GC-1 or FDP-III

♦ Special grant conditions anticipated: **none**

♦ Special reporting requirements anticipated: **none**

SHEBA:

SURFACE HEAT BUDGET OF THE ARCTIC OCEAN

PHASE 3

INTRODUCTION

The National Science Foundation (NSF) and the Office of Naval Research (ONR) support research projects in the Arctic Ocean. Some of this work is in conjunction with the Ocean-Atmosphere-Ice Interactions (OAII) component of the Arctic System Science (ARCSS) US Global Change Research Program. The ARCSS/OAII Science Steering Committee has advised that studies of the Arctic surface heat budget are a priority for Arctic global change research. Useful predictions of future arctic environmental change depend on the ability to understand and predict ice-albedo and cloud-radiation feedbacks (IAF and CRF). Furthermore, there is wide disagreement among existing climate models on the magnitude, timing, and distribution of the surface climate changes over the Arctic Ocean due to hemispheric and global forcing mechanisms.

Research on the key processes that determine IAF and CRF has been severely limited by the lack of comprehensive, accurate measurements that document the time evolution of the coupled upper-ocean/sea-ice/lower-atmosphere system over a full annual cycle in the Arctic Ocean. Accordingly, a coordinated research program has been formulated to address the interaction of the surface energy balance, atmospheric radiation, and cloud radiation feedback processes over the Arctic Ocean. The program is called SHEBA: Surface HEat Budget of the Arctic Ocean. SHEBA is a key element of the US Global Change Research Program and the Arctic Climate System Study (ACSYS) of the World Climate Research Programme.

In 1995-96, SHEBA began Phase 1 with projects to analyze existing data sets, conduct modeling studies, and develop technology pertinent to SHEBA objectives. In 1997-99, SHEBA conducted Phase 2, with projects acquiring a comprehensive data set documenting the surface heat budget and the evolution of the coupled upper-ocean/sea-ice/lower-atmosphere system in the multiyear pack ice of the Arctic Ocean. The experiment was carried out at and near an ice station drifting in the multiyear pack ice from 2 October, 1997 to 10 October, 1998. Additional information about the SHEBA Field Experiment is available at the SHEBA Project Office home page on the World Wide Web : http://sheba.apl.washington.edu.

The SHEBA data set is managed by the SHEBA Project Office, in collaboration with the SHEBA Phase 2 PI's, the Joint Office of Science Support (JOSS) of the University Corporation for Atmospheric Research, and the ARCSS Data Coordination Center at the National Snow and Ice Data Center. SHEBA data are managed on the basis of a protocol that assures full access by Phase 3 SHEBA PI's to the Phase 2 data sets. The protocol is available on the World Wide Web at: http://sheba.apl.washington.edu/data/protocol.html or by contacting the SHEBA Project Office.

A Table and summary information on all SHEBA Phase 2 data sets are available on the JOSS World Wide Web site at: http://www.joss.ucar.edu/sheba/webresponse/sheba2.html or by contacting JOSS. Many SHEBA data sets are already available to the general public through the SHEBA CODIAC System on the World Wide Web: http://www.joss.ucar.edu/cgi-bin/codiac/projs?SHEBA and through the SHEBA Project Office: http://sheba.apl.washington.edu/data/data.html. Detailed questions concerning specific Phase 2 SHEBA data sets can be addressed to the SHEBA Project Office, and to the responsible Phase 2 SHEBA investigators. A list of SHEBA Phase 2 Projects and investigators is available at: http://sheba.apl.washington.edu/current_docs/abstracts.html and http://sheba.apl.washington.edu/current_docs/investigators.html.

Participation in Phase 1 and Phase 2 is not a prerequisite for Phase 3 submission, nor does it guarantee participation in Phase 3.

SHEBA Phase 3 is intended to provide an opportunity for US investigators to propose coordinated programs or individual research projects relating to an in-depth analysis of IAF and CRF feedback mechanisms, the underlying

air-sea-ice interaction physics, and the related modeling of climate and climate-forming processes, taking advantage of the comprehensive SHEBA data set collected during Phase 2. To achieve the integrated goals and objectives of SHEBA, inter-disciplinary, coordinated proposals that address scientific questions, and modeling needs associated with IAF and CRF mechanisms (Fig. 1) are especially encouraged.

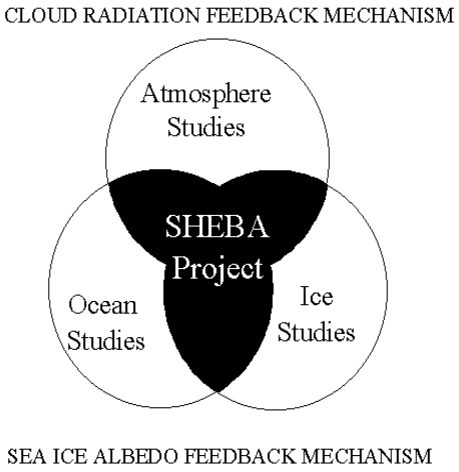

Figure 1. SHEBA is a multidisciplinary project addressing the integrated effects of the ice, ocean, and atmosphere processes on sea ice albedo and cloud radiation feedback mechanisms in the arctic. SHEBA Phase 2 collected data designed to address directly the feedback mechanisms. SHEBA Phase 3 will not support general studies of ice/ocean/ atmosphere processes.

PROGRAM DESCRIPTION

When sea ice forms, melts and freezes, profound changes occur in local rates of air-sea interaction. In addition to producing locally important effects, these changes have important effects on polar and global climate over time scales ranging from a season to a century and beyond because the sea ice introduces strong feedback mechanisms into the climate system. Understanding these mechanisms poses significant intellectual challenges: What are the time and space scales of air-sea-ice interaction processes? How do the individual processes interact to produce the present climate? What role will these interactive processes play in the response of polar and global climate to perturbations, such as enhanced concentrations of greenhouse gas in the atmosphere? The general circulation model (GCM) is the most comprehensive tool that has been used to address such questions. Numerous experiments performed with GCMs over the past 15 years support two important conclusions:

1. Interactions among sea ice, atmospheric radiation, and clouds in the Arctic exert a strong influence on the model-simulated global climate and climate sensitivity and,

2. Uncertainties in the formulations of interactive air-sea-ice processes result in large differences between the arctic and global climates simulated by different models.

In simplest terms, the principal uncertainties can be characterized as ice-albedo feedback and cloud-radiation feedback.

In response to these conclusions and to increasing scientific interest, SHEBA is envisioned as a multidisciplinary, 8-year project (1995-2002) with the primary goals of: (1) determining the ice-ocean-atmosphere processes that control the surface albedo and cloud-radiation feedback mechanisms over an annual cycle that will demonstrably lead to improvement of models of arctic ocean- atmosphere-ice processes, and (2) developing models that improve simulations of the present day arctic climate, including its variability, and the simulation of Arctic climate utilizing GCMs. To accomplish these goals, SHEBA Phase 3 projects will combine modeling and synthesis and integration of the SHEBA ocean/atmosphere/ice data set to investigate the IAF and CRF mechanisms, and develop improved formulations for climate models (Figure 2).

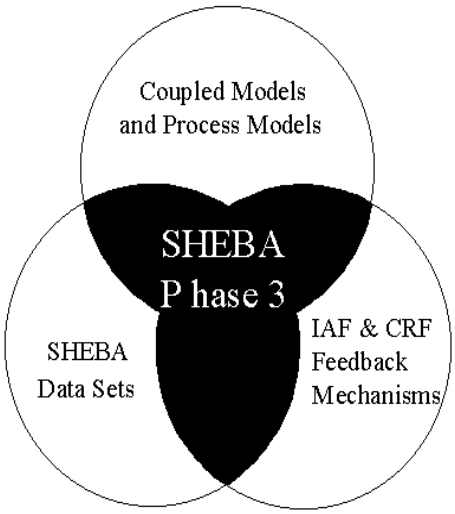

Figure 2. Phase 3 of SHEBA will support the use of data sets collected during Phase 2 with coupled and process models, to investigate the Ice-Albedo Feedback (IAF) and the Cloud-Radiation Feedback (CRF) mechanisms, and to produce more accurate, better understood models of arctic and global climate.

This Program Solicitation is for FY 2000-2002 Phase 3 funding. Emphasis must be placed on addressing key deficiencies in ocean-atmosphere-ice climate models as an element of the synthesis and integration of the SHEBA data set. Proposals of two to three years in duration are invited that include: Application of the SHEBA Data Set to develop improved, verified physical-mathematical models for the time evolution of the surface energy balance, sea-ice mass balance, surface radiative properties, atmospheric structure, and the coupled upper ocean-ice-atmosphere system. **All proposals must describe how the proposed study will address scaling from the local and regional scale of the SHEBA data set to the larger scales appropriate to the resolution of current and future climate models.**

SHEBA DATA SETS, COORDINATION AND INFRASTRUCTURE

During Phase 1 and Phase 2, a SHEBA Project Office was established to coordinate and manage certain aspects of the science program. These activities are to include overall responsibility for and coordination of SHEBA data management, and conducting workshops for sharing and dissemination of research results. The Project Office will serve as the contact point for coordination of science projects, including those funded by other agencies that are collaborating with SHEBA. The Project Office will provide SHEBA Phase 3 investigators with timely on-line access to data sets collected by SHEBA Phase 2 projects, as well as data sets available through agreement with collaborating programs and institutions, including Department of Energy Atmospheric Radiation Measurement Program, NASA First ISSCP Research Experiment 3, NASA RADARSAT Geophysical Processing System, NSF/Navy SCICEX, Japan Marine Science and Technology, and Department of Fisheries and Oceans Canada. The Project Office will provide communications and other appropriate support for SHEBA working groups during Phase 3.

To coordinate proposal submission and facilitate collaborative research projects, investigators are encouraged to submit an email or letter of intent with a description of the proposed research to the SHEBA Phase 2 Project Office, c/o Dr. Richard Moritz (http://sheba.apl.washington.edu). This list will be posted and updated on the SHEBA Project Office Home Page to facilitate communication among investigators with overlapping or mutually supportive projects.

Based on the continuation of current appropriation levels, and depending on availability of funds, about $9.0 million will be available in FY 2000-2002 to cover NSF- and ONR-sponsored research activities described in this Solicitation.

ELIGIBILITY

Proposals may be submitted by institutions to support individual investigators or small groups. Synergistic collaboration among researchers and collaboration or partnerships with industry or government laboratories is encouraged when appropriate. Group and collaborative proposals involving more than one institution must be submitted as a single administration package from one of the institutions involved.

AWARD INFORMATION

- Under this solicitation, NSF solicits proposals for any funding and expects to make grants at a wide variety of award sizes and duration. NSF expects to fund approximately 20-25 standard or continuing three-year research awards with award size ranging from $200,000 to $500,000 per year depending on the quality of submissions and the availability of funds. Approximately $9 million will be available for this initiative in FY 2000-02. Anticipated date of awards: August 2000.

PROPOSAL PREPARATION & SUBMISSION INSTRUCTIONS

A. Proposal Preparation Instructions.

Proposals submitted in response to this Program Solicitation should be prepared and submitted in accordance with the general guidelines contained in the *Grant Proposal Guide* (GPG), NSF 00-2. The complete text of the GPG (including electronic forms) is available electronically on the NSF Web site at: <http://www.nsf.gov/>. Paper copies of the GPG may be obtained from the NSF Publications Clearinghouse, telephone 301.947.2722 or by e-mail from pubs@nsf.gov.

Proposers are reminded to identify the program solicitation number (NSF00-19) in the program announcement/solicitation block on the NSF Form 1207, "*Cover Sheet for Proposal to the National Science Foundation*." Compliance with this requirement is critical to determining the relevant proposal processing guidelines. Failure to submit this information may delay processing.

Complete instructions for FastLane proposal submission can be found at http://www.fastlane.nsf.gov/a1/newstan.htm. A "Frequently Asked Questions" document on FastLane proposal preparation can be found at http://www.fastlane.nsf.gov/a0/about/a1faq.htm.

B. Proposal Due Dates.

Proposals **MUST** be submitted via FastLane by 5:00 PM, local time, March 8, 2000. Copies of the signed proposal cover sheet must be submitted in accordance with the instructions identified below.

Submission of Signed Cover Sheets. The signed proposal Cover Sheet (NSF Form 1207) must be postmarked (or provide a legible proof of mailing date assigned by the carrier) within five working days following the electronic submission of the proposal and forwarded to the following address:

National Science Foundation
DIS-FastLane Cover Sheet
4201 Wilson Blvd.
Arlington, VA 22230

A proposal may not be processed until the complete proposal (including signed Cover Sheet) has been received by NSF.

C. FastLane Requirements.

The NSF FastLane system is available for electronic preparation and submission of a proposal through the Web at the FastLane Web site at <http://www.fastlane.nsf.gov>. The Sponsored Research Office (SRO or equivalent) must provide a FastLane Personal Identification Number (PIN) to each Principal Investigator (PI) to gain access to the FastLane "Proposal Preparation" application. PIs that have not submitted a proposal to NSF in the past must contact their SRO to be added to the NSF PI database. This should be done as soon as the decision to prepare a proposal is made.

In order to use NSF FastLane to prepare and submit a proposal, the following are required:

Browser
Netscape 3.01 or greater
Microsoft Internet Explorer 4.01 or greater

PDF Reader
Adobe Reader 3.0 or greater

PDF Generator
Adobe Acrobat 3.X or greater
Aladdin Ghostscript 5.10 or greater

A list of registered institutions and the FastLane registration form are located on the FastLane Web page.

PROPOSAL REVIEW INFORMATION

A. Merit Review Criteria.

Review of proposals submitted to NSF are solicited from peers with expertise in the substantive area of the proposed research or education project. These reviewers are selected by Program officers charged with the oversight of the review process. NSF invites the proposer to suggest at the time of submission, the names of appropriate or inappropriate reviewers. Care is taken to ensure that reviewers have no conflicts with the proposer. Special efforts are made to recruit reviewers from non-academic institutions, minority serving institutions, adjacent disciplines to that principally addressed in the proposal, etc.

Proposals will be reviewed against the following general merit review criteria established by the National Science Board. Following each criterion are potential considerations that the reviewer may employ in the evaluation. These are suggestions and not all will apply to any given proposal. Each reviewer will be asked to address only those that are relevant to the proposal and for which he/she is qualified to make judgments.

What is the intellectual merit of the proposed activity?

How important is the proposed activity to advancing knowledge and understanding within its own field or across different fields? How well qualified is the proposer (individual or team) to conduct the project? (If appropriate, the reviewer will comment on the quality of prior work.) To what extent does the proposed activity suggest and explore creative and original concepts? How well conceived and organized is the proposed activity? Is there sufficient access to resources?

What are the broader impacts of the proposed activity?

How well does the activity advance discovery and understanding while promoting teaching, training, and learning? How well does the proposed activity broaden the participation of underrepresented groups (e.g., gender, ethnicity, disability, geographic, etc.)? To what extent will it enhance the infrastructure for research and education, such as facilities, instrumentation, networks, and partnerships? Will the results be disseminated broadly to enhance scientific and technological understanding? What may be the benefits of the proposed activity to society?

PIs should address the following elements in their proposal to provide reviewers with the information necessary to respond fully to both NSF merit review criteria. NSF staff will give these factors careful consideration in making funding decisions.

Integration of Research and Education

One of the principal strategies in support of NSF's goals is to foster integration of research and education through the programs, projects and activities it supports at academic and research institutions. These institutions provide abundant opportunities where individuals may concurrently assume responsibilities as researchers, educators, and students and where all can engage in joint efforts that infuse education with the excitement of discovery and enrich research through the diversity of learner perspectives. PIs should address this issue in their proposal to provide reviewers with the information necessary to respond fully to both NSF merit review criteria. NSF staff will give it careful consideration in making funding decisions.

Integrating Diversity into NSF Program, Projects, and Activities

Broadening opportunities and enabling the participation of all citizens -- women and men, underrepresented minorities, and persons with disabilities -- are essential to the health and vitality of science and engineering. NSF is committed to this principle of diversity and deems it central to the programs, projects, and activities it considers and supports. PIs should address this issue in their proposal to provide reviewers with the information necessary to respond fully to both NSF merit review criteria. NSF staff will give it careful consideration in making funding decisions.

Additional Review Criteria

Review of proposals and support of the SHEBA Phase 3 project will be handled cooperatively by NSF and ONR. Additional review criteria include the degree to which the research addresses SHEBA objectives and priorities, and its compatibility with related research efforts funded elsewhere. All proposals must describe how the proposed study will address scaling from the local and regional scale of the SHEBA data set to the larger scales appropriate to the resolution of current and future climate models.

B. Review Protocol and Associated Customer Service Standard

All proposals are carefully reviewed by at least three other persons outside NSF who are experts in the particular field represented by the proposal. Proposals submitted in response to this solicitation will be reviewed by panel review only. Reviewers will be asked to formulate a recommendation to either support or decline each proposal. A program officer assigned to manage the proposal's review will consider the advice of reviewers and will formulate a recommendation. In most cases, proposers will be contacted by the program officer after his or her recommendation to award or decline funding has been approved by his or her supervisor. NSF will be able to tell applicants whether their proposals have been declined or recommended for funding within six months for 95 percent of proposals in this category. The time interval begins on the proposal deadline or target date or from the date of receipt, if deadlines or target dates are not used by the program. The interval ends when the division director accepts the program officer's recommendation.

In all cases, after final programmatic approval has been obtained, award recommendations are then forwarded to the Division of Grants and Agreements for review of business, financial and policy implications and the processing and issuance of a grant or other agreement. Proposers are cautioned that only a Grants Officer may make commitments, obligations or awards on behalf of NSF or authorize the expenditure of funds. No commitment on the part of NSF should be inferred from technical or budgetary discussions with an NSF program officer. A principal investigator or organization that makes financial or personnel commitments in the absence of a grant or cooperative agreement signed by the NSF Grants Officer does so at its own risk.

AWARD ADMINISTRATION INFORMATION

A. Notification of the Award.

Notification of the award is made ***to the submitting organization*** by a Grants and Agreements Officer in the Division of Grants and Agreements (DGA). Organizations whose proposals are declined will be advised as promptly as possible by the cognizant NSF Program Division administering the program. Verbatim copies of reviews, not including the identity of the reviewer, will be provided automatically to the Principal Investigator.

B. Grant Award Conditions.

An NSF grant consists of: (1) the award letter, which includes any special provisions applicable to the grant and any numbered amendments thereto; (2) the budget, which indicates the amounts, by categories of expense, on which NSF has based its support (or otherwise communicates any specific approvals or disapprovals of proposed expenditures); (3) the proposal referenced in the award letter; (4) the applicable grant conditions, such as Grant General Conditions (NSF GC-1)* or Federal Demonstration Partnership Phase III (FDP) Terms and Conditions. Electronic mail notification is the preferred way to transmit NSF grants to organizations that have electronic mail capabilities and have requested such notification from the Division of Grants and Agreements.

***** These documents may be accessed electronically on NSF's Web site at: <http://www.nsf.gov/>. Paper copies may be obtained from the NSF Publications Clearinghouse, telephone 301.947.2722 or by e-mail from pubs@nsf.gov.

More comprehensive information on NSF Award Conditions is contained in the NSF *Grant Policy Manuel* (GPM) Chapter II, (NSF 95-26) available electronically on the NSF Web site. The GPM also is available in paper copy by subscription from the Superintendent of Documents, Government Printing Office, Washington, DC 20402. The GPM may be ordered through the GPO Web site at: <http://www.gpo.gov>. The telephone number at GPO for subscription information is 202.512.1800.

C. Reporting Requirements.

For all multi-year grants (including both standard and continuing grants), the PI must submit an annual project report to the cognizant Program Officer at least 90 days before the end of the current budget period.

Within 90 days after expiration of a grant, the PI also is required to submit a final project report. Approximately 30 days before expiration, NSF will send a notice to remind the PI of the requirement to file the final project report. Failure to provide final technical reports delays NSF review and processing of pending proposals for that PI. PIs should examine the formats of the required reports in advance to assure availability of required data.

NSF has implemented a new electronic project reporting system, available through FastLane, which permits electronic submission and updating of project reports, including information on: project participants (individual and organizational); activities and findings; publications; and, other specific products and contributions. Reports will continue to be required annually and after the expiration of the grant, but PIs will not need to re-enter information previously provided, either with the proposal or in earlier updates using the electronic system.

Effective October 1, 1999, PIs are required to use the new reporting format for annual and final project reports.

D. New Awardee Information.

If the submitting organization has never received an NSF award, it is recommended that the organization's appropriate administrative officials become familiar with the policies and procedures in the NSF *Grant Policy Manual* which are applicable to most NSF awards. The "Prospective New Awardee Guide" (NSF 97-100) includes information on: Administration and Management Information; Accounting System Requirements and Auditing Information; and Payments to Organizations with Awards. This information will assist an organization in preparing documents that NSF requires to conduct administrative and financial reviews of an organization. The guide also serves as a means of highlighting the accountability requirements associated with Federal awards. This document is available electronically on NSF's Web site at: <http://www.nsf.gov/cgi-bin/getpub?nsf97100>.

CONTACTS FOR ADDITIONAL INFORMATION

Questions regarding proposal preparation or submission may be directed to Michael T. Ledbetter, Office of Polar Programs, (703) 306-1029, email: mledbett@nsf.gov; H. Lawrence Clark, Division of Ocean Sciences, (703) 306-1584, email: hclark@nsf.gov; Dennis Conlon, Office of Naval Research, (703) 696-4720, email: conlond@onr.navy.mil.

OTHER PROGRAMS OF INTEREST

The NSF Guide to Programs is a compilation of funding opportunities for research and education in science, mathematics, and engineering. General descriptions of NSF programs, research areas, and eligibility information for proposal submission are provided in each chapter. Beginning in fiscal year 1999, the NSF Guide to Programs only will be available electronically. Many NSF programs offer announcements concerning specific proposal requirements. To obtain additional information about these requirements, contact the appropriate NSF program offices listed in Appendix A of the GPG.

Any changes in NSF's fiscal year programs occurring after press time for the Guide to Programs will be announced in the NSF E-Bulletin, available monthly (except July and August), and in individual program announcements. The Bulletin is available electronically via the NSF Web site at: <http://www.nsf.gov/>. The direct URL for recent issues of the Bulletin is <http://www.nsf.gov/od/lpa/news/publicat/bulletin/bulletin.htm >. Subscribers can also sign up for NSF's Custom News Service to find out what funding opportunities are available.

ABOUT THE NATIONAL SCIENCE FOUNDATION

The National Science Foundation (NSF) funds research and education in most fields of science and engineering. Grantees are wholly responsible for conducting their project activities and preparing the results for publication. Thus, the Foundation does not assume responsibility for such findings or their interpretation.

NSF welcomes proposals from all qualified scientists, engineers and educators. The Foundation strongly encourages women, minorities, and persons with disabilities to compete fully in its programs. In accordance with federal statutes, regulations, and NSF policies, no person on grounds of race, color, age, sex, national origin, or

disability shall be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving financial assistance from NSF (unless otherwise specified in the eligibility requirements for a particular program).

Facilitation Awards for Scientists and Engineers with Disabilities (FASED) provide funding for special assistance or equipment to enable persons with disabilities (investigators and other staff, including student research assistants) to work on NSF-supported projects. See the program announcement or contact the program coordinator at (703) 306-1636.

The National Science Foundation has Telephonic Device for the Deaf (TDD) and Federal Information Relay Service (FIRS) capabilities that enable individuals with hearing impairments to communicate with the Foundation regarding NSF programs, employment, or general information. TDD may be accessed at (703) 306-0090 or through FIRS on 1-800-877-8339.

We want all of our communications to be clear and understandable. If you have suggestions on how we can improve this document or other NSF publications, please email us at plainlanguage@nsf.gov.

PRIVACY ACT AND PUBLIC BURDEN STATEMENTS

The information requested on proposal forms and project reports is solicited under the authority of the National Science Foundation Act of 1950, as amended. The information on proposal forms will be used in connection with the selection of qualified proposals; project reports submitted by awardees will be used for program evaluation and reporting within the Executive Branch and to Congress. The information requested may be disclosed to qualified reviewers and staff assistants as part of the review process; to applicant institutions/grantees to provide or obtain data regarding the proposal review process, award decisions, or the administration of awards; to government contractors, experts, volunteers and researchers and educators as necessary to complete assigned work; to other government agencies needing information as part of the review process or in order to coordinate programs; and to another Federal agency, court or party in a court or Federal administrative proceeding if the government is a party. Information about Principal Investigators may be added to the Reviewer file and used to select potential candidates to serve as peer reviewers or advisory committee members. See Systems of Records, NSF-50, "Principal Investigator/Proposal File and Associated Records," 63 Federal Register 267 (January 5, 1998), and NSF-51, "Reviewer/Proposal File and Associated Records," 63 Federal Register 268 (January 5, 1998). Submission of the information is voluntary. Failure to provide full and complete information, however, may reduce the possibility of receiving an award.

Public reporting burden for this collection of information is estimated to average 120 hours per response, including the time for reviewing instructions. Send comments regarding this burden estimate and any other aspect of this collection of information, including suggestions for reducing this burden, to: Suzanne H. Plimpton, Reports Clearance Officer; Division of Administrative Services; National Science Foundation; Arlington, VA 22230.

YEAR 2000 REMINDER

In accordance with Important Notice No. 120 dated June 27, 1997, Subject: Year 2000 Computer Problem, NSF awardees are reminded of their responsibility to take appropriate actions to ensure that the NSF activity being supported is not adversely affected by the Year 2000 problem. Potentially affected items include: computer systems, databases, and equipment. The National Science Foundation should be notified if an awardee concludes that the Year 2000 will have a significant impact on its ability to carry out an NSF funded activity. Information concerning Year 2000 activities can be found on the NSF web site at http://www.nsf.gov/oirm/y2k/start.htm .

The National Science Foundation is committed to making all of the information we publish easy to understand. If you have a suggestion about how to improve the clarity of this document or other NSF-published materials, please contact us at plainlanguage@nsf.gov.

CFDA 47.078 (Polar Programs), 47.050 (Directorate of Geosciences)
OMB #3145-0058
NSF 00-19